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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/772,118	01/26/2001	Sudhendu Rai	D/A0978/XXT-116	8987
7590	08/09/2004		EXAMINER	
PATRICK R. ROCHE FAY, SHARPE, FAGAN, MINNICH & McKEE, LLP 1100 SUPERIOR AVENUE 7TH FLOOR CLEVELAND, OH 44114-2518			TANG, KENNETH	
			ART UNIT	PAPER NUMBER
			2127	
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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Interview Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/772,118	RAI ET AL.	
	<b>Examiner</b> Kenneth Tang	<b>Art Unit</b> 2127	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Kenneth Tang. (3) Mark Svat.  
 (2) Joe Cornely. (4) \_\_\_\_\_.

Date of Interview: 05 August 2004.

Type: a) Telephonic b) Video Conference  
 c) Personal [copy given to: 1) applicant 2) applicant's representative]

Exhibit shown or demonstration conducted: d) Yes e) No.

If Yes, brief description: See attached for Applicant's Proposed Claim Amendments.

Claim(s) discussed: 1-37.

Identification of prior art discussed: \_\_\_\_\_.

Agreement with respect to the claims f) was reached. g) was not reached. h) N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant explained the definition of cell as consisting of a logical grouping of resources sufficient for completing at least one type of document processing job. In addition, Applicant stated the novelty of the invention as a) a print shop using autonomous cells (printers, copiers, etc.), b) Bidding on cells based on capacities, and c) If a job is too large, splitting the jobs into subjobs (claim 37).

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

  
Kenneth Tang  
 Examiner's signature, if required

## Summary of Record of Interview Requirements

### **Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record**

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

### **Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews**

#### **Paragraph (b)**

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

#### **37 CFR §1.2 Business to be transacted in writing.**

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

#### **Examiner to Check for Accuracy**

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

## **Proposed Claim Amendments**

1. (currently amended) A printing workflow system disposed in a network for coordinating production of a document processing job among a plurality of autonomous cells, wherein each cell consists of a logical grouping of resources sufficient for completing at least one type of document processing job, and wherein each cell submits a bid to process the document processing job received by the printing workflow system, the printing workflow system comprising:

a search module for searching which one or more of the cells can execute the job and creating a first subset of cells available to process the document processing job;

a transfer module for transferring information to the first subset of cells about the document processing job;

a receiving module for receiving bids in response to the information transferred to the first subset of cells to process the document processing job;

a selector module for selecting one or more cells to process the document processing job based on information in the bids received; and

a queuing module for dispatching the document processing job to the selected one or more cells for processing.

2. (currently amended) The printing workflow system as recited in claim 1 wherein the printing workflow system stores all information regarding the currently pending document processing jobs in each cell.

3. (currently amended) The printing workflow system as recited in claim 1

wherein the printing workflow system stores all information regarding current document processing jobs that have arrived in the print shop and have yet to be allocated for production.

4. (currently amended) The printing workflow system as recited in claim 1 wherein the print flow printing workflow system assigns priority value to each new document processing job that arrives.

5. (currently amended) The printing workflow system as recited in claim 1 wherein the selector module selects the first subset of cells with the lowest bids.

6. (currently amended) In a printing workflow system a method for processing document processing jobs by receiving bids by a plurality of cells to process the document processing job, the method comprising:

searching which one or more of the cells can execute the job and creating a first subset of cells available to process the document processing job.

transferring information to the first subset of cells about the document processing job.

receiving bids in response to the information transferred to the first subset of cells to process the document processing job and

selecting cells to process the document processing job based on information in the bids received.

7. (currently amended) The method as recited in claim 6 wherein the printing workflow system stores all information regarding the currently pending document processing jobs in each cell.

8. (currently amended)The method as recited in claim 7 wherein the printing workflow system stores all information regarding current document processing jobs that have arrived in ~~the~~<sup>a</sup> print shop and have yet to be allocated for production.

9. (currently amended)The method as recited in claim 6 wherein the printing workflow system stores all information regarding the currently pending document processing jobs in each cell.

10. (currently amended)The method as recited in claim 6 wherein the printing workflow system assigns a priority value to each new document processing job that arrives.

11. (currently amended)The method as recited in claim 6 wherein ~~the~~ selector module selects the first subset of cells with the lowest bids.

12. (currently amended)A scheduling device for scheduling a document processing job in a printing workflow system, the scheduling device comprising:

a first module for determining whether the document processing job ~~could~~<sup>can</sup> be accomplished in one cell or a plurality of cells;

a second module for determining the time it would take to process the document processing job in the first module;

a third module for defining timing parameters to accomplish the document processing job based on information from the second module;

a fourth module for applying the timing parameters to the cell or plurality of cells to process the document processing job by a specific due

dates and

a fifth module for queuing the document processing job in one or more cells based ~~upon~~ the information from the fourth module to efficiently process the document processing job ~~in~~ by the specified due date.

13. (currently amended) The scheduling device as recited in claim 12 wherein the printing workflow system stores all information regarding the currently pending document processing jobs by each cell.

14. (currently amended) The scheduling device as recited in claim 12 wherein the printing workflow system stores all information regarding current document jobs that have arrived in ~~the~~ a print shop and have yet to be allocated for production.

15. (currently amended) The scheduling device as recited in claim 12—~~14~~ wherein the printing workflow system stores all information regarding the currently pending document processing jobs by each cell.

16. (currently amended) In a scheduling device, a method for scheduling a document processing job in a printing workflow system, the method comprising:

determining whether the document processing job could be accomplished in one cell or a plurality of cells;

determining the time it would take to process the document processing job in the first module;

defining timing parameters to accomplish the document processing job based on the information from the second module;

applying the timing parameters to the cell or plurality of cells to process the document processing job by a specified due date; and

queueing the document processing job in one or more cells based ~~in-on~~ the information from the fourth module to efficiently process the document processing job ~~in-by~~ the specified due date.

17. (currently amended) The method as recited in claim 16 wherein the printing workflow system stores all information regarding the currently pending document ~~processing~~ jobs in each cell.

18. (currently amended) The method as recited in claim 16 wherein the printing workflow system stores all information regarding current document ~~processing~~ jobs that have arrived in ~~the a print~~ shop and have yet to be allocated for production.

19. (currently amended) The method as recited in claim 16-18 wherein the printing workflow system stores all information regarding the currently pending document ~~processing~~ jobs in each cell.

20. (original) A device for assigning a unique ID to a document processing job, the device comprising:

a matrix for defining operations performed by a printing workflow system wherein a new operation in the printing workflow system is prepended to the matrix;

a descriptor module for creating a new matrix by assigning a value in the matrix for each operation required to be performed ~~by-to complete~~ the document processing job; and

a converter module for converting the new matrix into a numerical format that represent the unique ID.

21. (currently amended) The device as recited in claim 20 wherein the descriptor module assigns a number 1 for each operation that needs to be completed and ~~a~~ number 0 if the operation is not needed.

22. (original) The device as recited in claim 20 wherein the new matrix will result into a binary string.

23. (original) The device as recited in claim 22 wherein the converter module converts the binary string of the new matrix into its decimal equivalent.

24. (original) In a device, a method for assigning a unique ID to a document processing job, the method comprising:

defining operations performed by a printing workflow system wherein a new operation in the printing workflow system is prepended to a matrix.

creating a new matrix by assigning a value in the matrix for each operation required to be performed by the document processing job; and

converting the new matrix into a numerical format that represents the unique ID.

25. (currently amended) The method as recited in claim 24 wherein the descriptor module assigns a number 1 for each operation that needs to be completed and ~~a~~ number 0 if the operation is not needed.

26. (original) The method as recited in claim 24 wherein the new matrix will result into a binary string.

27. (currently amended) The method as recited in claim 24 wherein the unique ID is used to determine which cell the job needs to be routed to ~~completed-in~~ order to complete the document processing job.

28. (currently amended) A device for assigning a descriptive ID to a document processing job, the device comprising:

a unique ID for identifying uniquely the document processing job;

a first module for appending to the unique ID a due date of the document processing job;

a second module for appending to the unique ID a due time of the document processing job;

a third module for appending to the unique ID the number of duplicates needed for the document processing job;

a fourth module for appending to the unique ID a number of units associated with each operation in the document processing job;

a fifth module for creating the descriptive ID by appending the information in the first, second, third and fourth modules into a string.

29. (currently amended) The device as recited in claim 28 wherein the string is a decimal string.

30. (original) The device as recited in claim 29 further comprising a converter module for converting the string into hexadecimal.

31. (currently amended) In a device, a method for assigning a descriptive ID to a document processing job, the method comprising:

identifying a unique ID for the document processing job;

appending to the unique ID a due date of the document processing job;

appending to the unique ID a due time of the document processing job;

appending to the unique ID the number of duplicates needed for the document processing job;

appending to the unique ID a number of units associated with each operation in the document processing job; and

creating the descriptive ID by appending the information associated with the unique ID and the due date, due time, number of duplicates and number of units with each operation into a string.

32. (currently amended) The method as recited in claim 31 wherein the string is a decimal string.

33. (original) The method as recited in claim 32 further comprising a converter module for converting the string into hexadecimal.

34. (currently amended) A scheduling device for scheduling a document

processing job in a printing workflow system, the scheduling device comprising:

a first module for determining whether there are any scheduling constraints for a document processing job optimization problem;

a second module for determining whether the cost function is linear; and

a third module for optimizing the cost function subject to the scheduling constraints by using standard linear programming techniques.

35. (original) The scheduling device as recited in claim 34 wherein the standard linear programming technique is used to compute Pareto optimal solutions.

36. (currently amended) The scheduling device as recited in claim 35 further comprising determining whether the document processing job can be done entirely in one cell.

37. (currently amended) The scheduling device as recited in claim 35 further comprising splitting jobs into sub-jobs when the document processing cannot be done entirely in one cell.

## Comments

As to claims 1 – 19, the rejections under 35 U.S.C. 103(a) as being unpatentable over H.A.M. Van Oijen (U.S. Patent No. 5,918,988) are hereby traversed. The cited reference does not teach or fairly suggest all the claim limitations of the present application. The office action asserts that H.A.M. Van Oijen teaches coordinating production of a document processing job among a plurality of cells, wherein each cell submits a bid to process the document processing job received by the printing workflow system. The Applicants respectfully disagree with the office action's assertion. The present application discloses distributing one or more document processing jobs between multiple autonomous cells capable of completing at least the document processing job that is received at the cell. H.A.M. Van Oijen neither teaches nor fairly suggests this concept; rather H.A.M. Van Oijen discloses a system and method for selecting a single print job from a plurality of print jobs stored in memory. Also, the Applicants respectfully suggest that the Examiner is misinterpreting the concept of a "cell" as claimed in the present application in conjunction with the concept of "cell" as described in the cited reference. A "cell" as disclosed in the present application refers to a grouping of resources sufficient to complete at least one type of document processing job autonomously, i.e. complete the document processing job entirely within the cell. Conversely, the "cell" of H.A.M. Van Oijen refers to "a cell of the matrix" of a matrix-sorting process. It is a cell of a matrix having a vertical and horizontal axis which correspond to "original images or files" of the print job and "sets" of the print job respectively. A cell, as disclosed in H.A.M. Van Oijen, contains a number indicating how many prints of an original image or file are to be printed for each specific set of the print job wherein a set corresponds to a single run or a job therein.

The office action further asserts that H.A.M. Van Oijen teaches each cell submitting a bid to process the document processing job received by the printing workflow system. The applicants respectfully submit that H.A.M. Van Oijen neither teaches nor fairly suggests that cells submit bids to process the document processing job; rather H.A.M. Van Oijen teaches selecting a print job

on the basis of print criteria which is set by a user. A print job is selected automatically from a plurality of print jobs stored in memory based on print criteria which has been set by a user. The print job may be selected based on the number of copies to be printed of a print job or based on the type of stock, e.g. letter-size or A4, required for a print job; however, nowhere in H.A.M. Van Oijen is it disclosed that a bid is submitted by a cell to process the document processing job.

For at least the reasons stated above, the Applicants respectfully submit that independent claims 1, 6, 12 and 16 distinguish over the cited art and are in condition for allowance, furthermore, claims 1 – 5, 7 – 11, 13 – 15 and 17 – 19 which depend respectively therefrom, are also in condition for allowance.